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ART. 95.—*Senecio obovatus, or Squaw Weed, poisonous to Sheep—Communicated by* Mr. ELAM TILDEN, *of New Lebanon, N. Y.*

Early in the spring of 1826, I purchased a lot of about 60 acres of land, lying three-fourths of a mile south of New Lebanon Meeting-House. This lot for many years bore the reputation of producing something that poisoned sheep, which were occasionally found dead in the field. From the elevation of the land, and having often passed over it, and never having seen any thing known or even supposed to be noxious, I disregarded the report. As soon as vegetation started, we turned on to the lot ewes and lambs, which were kept there during the month of May, the weather continuing very dry during the whole month. About the first of June they were removed for washing and shearing, having suffered no injury. Rain soon after followed in abundance; and in about two weeks we turned on 100 large healthy wethers. In about 36 hours we had information that sheep were seen dead in the pasture. On examining them immediately, we found many dead, and the whole flock more or less diseased. We immediately commenced the usual remedies for poison—milk mixed with clay, lard, molasses, &c. Such as were not too far gone recovered; but about one fourth of the whole number died, and many of the others were nearly ruined. Mr. Lawrence, of the Society of Shakers, a very good botanist, assisted me in examining the field. We searched it foot by foot—could discern nothing supposed to be noxious. We discovered that the blossoms were cropped off from a plant that Mr. Lawrence called *Squaw Weed*, which he said they frequently used to make a wash for salt rheum, and considered it a wholesome plant. On dissection, the flowers of this plant were found in the stomachs of the sheep, which induced us to inquire more particularly respecting its properties. The stomachs of the sheep were corroded, and where they had been longer dead, the inner coats were black, and would peel off with the contents of the stomach. The intestines were filled with a black glutinous substance; and the excrements of those that recovered had the appearance of tar. The bladders, which contained no water, were about the size and shape of a butternut, and appeard tough like par-boiled flesh. After this discovery we administered spirits of nitre to great advantage. There is no durable water in this pasture; and after the rains before mentioned, water issued out from the lime ledges, and the sheep were seen to drink of it. Finding nothing else, we were disposed to attribute the mischief to something contained in the water. This however was examined by chemists, and found to contain nothing deleterious to health. Still ignorant of the cause of the mischief, in 1827 we managed by turning in sheep precisely in the same way, (except turning in when there was no water in the lot,) and the same result followed, except, being a little more watchful, we did not lose quite as many. We found the *Squaw Weed* cropped the same as before, and found it in the stomach of the sheep. The same Shaker assisted me in re-examining the field with the same result, he protesting that the *Squaw Weed* would not produce the evil. However, I was not satisfied, and desired my farmer to gather some flowers and feed to a sheep, to watch her; and if he saw that the symptoms produced were similar to what appeared in the other, to administer the remedies; but his attention was called off, and he did not see the sheep in time after she grew sick, to give her any thing: it died in 10 or 12 hours. The sheep eat the flowers voluntarily, but I believe was kept from feeding during the previous night. I believe the sheep were in both cases turned into the pasture when hungry. No doubt the sheep to which the flowers were purposely given, eat a larger quantity than any which eat them in the field. After the flowering season was past we kept sheep in the pasture without injury. This season we took them out of the pasture as soon as any flowers appeared. There is no evidence of their ever eating the leaves of this plant; and it appears, when they are turned in early and kept constantly in the pasture where the plant grows, that they do not eat it so freely, and probably eat more or less of it according to the abundance of the grass.

The effect upon my sheep has been much more destructive than upon those of any former owner of the field. It was their practice to turn on a certain number and continue them there during the season: Perhaps from instinct the older ones might avoid it, or they might commence eating it as soon as the blossoms appeared, and succeed in eating them as

fast as they put out, and only a part obtain enough to produce death.

Some time in the month of August last, we discovered that some of our ewes and lambs were diseased: the short wool on their backs peeled off, and on examination we were apprehensive it was the Scab, and immediately selected the diseased ones and applied mercurial ointment: but on inquiry we found this was the flock that was on the fatal pasture before shearing. Our alarm respecting the Scab subsided, as we were led to the conclusion that both sheep and lambs ate of the flowers before shearing, but not in sufficient quantity to produce any fatal or even serious effect. They all got well without further trouble. Our flock consists of about one thousand altogether, and the *Squaw Weed* grows in no other pasture than the one described.

[From the specimens which accompanied the preceding article, we are enabled to identify the species of plant which is designated as *Squaw weed*. That term is applied indiscriminately to many plants which were in repute as Indian specifics. In some parts of the country the *Erigeron philadelphicum* is commonly knowu by that name. The subject of the present communication we should hardly have suspected to contain the noxious qualities attributed to it; but the fact seems to be well established from the experiments of our intelligent and respectable correspondent. It is not to be found in our neighborhood, yet it is common in other parts of the country, and extends all over the northern states. It is the *Senecio obovatus* of Linneus. The name of Groundsel is common, in England, to plants of this genus, and in some of our catalogues it is adopted, particularly for the species *S. vulgaris*. It is quite an ornamental plant, with flower somewhat resembling a small sun-flower. It grows to the height of twelve or fifteen inches and the leaves, which grow at the base of the stem, are oblong or inversely egg shaped with the margin notched with blunt teeth. The footstalks or stems which support the flowers are long and arranged not unlike the sticks of an umbrella. May and June are its flowering months. *Eds.*]

[For the N. Y Farmer and Horticultural Repository.]

ART. 96.—*A Short Treatise on Botany.*

[We insert the following epitome of the pleasing and useful science of Botany, under the impression that our readers will value it for its comprehensiveness and accuracy, and for its adaption to the exercise of the juvenile mind.]

What is Botany?

Botany is that branch of the Science of Natural History which treats of plants, including their structure and properties.

Of what use is Botany?

Botany, if studied with a view to its profitable application, is of importance to various classes of society. To the farmer, the knowledge of the various herbs, grasses and fruit trees which he cultivates for his own use, and even the weeds which infest his ground and are noxious to himself or his cattle, might be of the highest benefit. It teaches him the kind of treatment as to the soils required by different plants, the nature of the climate and temperature to which they have been accustomed in their native places, and the times and seasons proper for planting and transplanting them.

What other class of society may derive benefit from the study of Botany?

The physician is interested in this science, from the knowledge of the properties and chemical composition of various plants, useful for medical purposes.

But is Botany of no benefit except from its conversion to some profitable purpose?

Botany, as a mere amusement, affords a delightful recreation and exercise for the mind: the fancy is gratified by the contemplation of the endless variety in forms, and the beauty and delicacy of tints, which are found in flowers; while the higher intellectual powers find employment in classifying and arranging them in the different systems which men of the greatest genius have devised to facilitate their study.

Was Botany known to the ancients?

Not as a science. Plants have been an object of attention to every race of men in all ages; but the principles now so well settled, and which render the science of Botany a philosophical study, are entirely of modern origin. It is a subject of regret that the virtues of many plants known to the ancients are entirely lost to us, from the impossibility of recognizing them from the mere names left of them—names constructed without any reference to their forms or qualities, and no descriptions being given whereby they can be ascertained.

How is Botany usually divided in treating of it methodically?

There are many different divisions in which the science might be distributed, according as we are to consider it in theory or in its practical application. At present we are about to treat of it under three different heads, viz.: NOMENCLATURE, CLASSIFICATION and PHYSIOLOGY.

What is Botanical Nomenclature?

It is the language by which we describe the various organs or parts of plants; such as their leaves, stem, flower, fruit &c., the particular shape and form of each having a distinct term or phrase which easily defines it.

What is Classification?

Classification is the method of arranging plants in certain groups or classes, according to their coincidence in some leading characteristics, such as the number of particular organs, or in resemblance with each other in structure, or manner of producing fruit, or otherwise: so that, knowing on what the system is founded, when we wish to know the name of a plant which is included in the system, we search, for it where its congeners, or those to which it is related are arranged; and if the plant has been named and described, it will be found in that place.

How are plants generally divided?

There are two grand divisions of plants, viz.: *Phænogamous* or *Phanerogamous* and *Cryptogamous*, or as they are sometimes improperly termed, *Perfect* and *Imperfect*.

Can any plant be justly termed imperfect?

Certainly not; for every plant, however humble or unsightly, being the production of an Almighty hand, must be considered as forming part of a great system, and therefore if relatively considered, must be perfect.

What is meant by Vegetable Physiology?

Physiology in Botany relates to the internal structure and chemical composition of plants.

Of Nomenclature.

How do you proceed in describing a plant?

First by considering the root, then the stem, the leaves, the fulcra or supports, the different parts which constitute the flower and those of the fruit.

What is the root of a plant?

The root is that part which supports the plant, and is generally fixed under ground; sometimes it is attached to the surface of other objects. It has various forms: sometimes it is *fibrous*, consisting of many small fibres or threads, by means of which it draws nourishment from the earth, as the roots of most grasses. Sometimes it is *tuberous*, consisting of tubers or fleshy knobs of one uniform substance and texture, such as the root of the potato. Sometimes it is *bulbous*, consisting of knobs not of one uniform texture, but composed of several concentric coats or layers, such as the onion and tulip.

What is the stem?

The stem is the intermediate part between the root and the flower. It is of several kinds. It is called a *trunk* when it is of woody structure, and belongs to trees or shrubs. When it is herbaceous, or belongs to green juicy herbs, it is a *stalk*. When it is like the preceding, but bears no leaves, but proceeding from the root, supports the flower, it is called a *scape*, as in the tulip.

What are the leaves of a plant?

The leaves are generally green-colored, membranaceous flat plates, commonly pointed, which grow around the stems and usually fall off at certain periods. There are many varieties of form and shape which they assume, and as many different terms are employed to describe their various outlines. The part that connects the leaf to the stem is called the *petiole*.

What are the *fulcra* or supports?

They are of very different kinds. In some they consist of those appendages on the stem of plants near the leaves, and are called *stipules*. When these appendages are situated under the flower, they take the name of *bractea*. When they serve the purpose of attaching the plant to other objects for support, they are called *tendrils*, *cirrhi*. Other kinds consist of spines, thorns, glands, and hair or pubescence.

What is the flower?

The flower consists of several distinct organs, most commonly of the calyx, corrolla, and the stamina and pistils; but sometimes these are not all present. The *calyx* or perianth, as it is sometimes called, is the external covering of the flower, generally of a green color, and sometimes with one leaf with tip divided into segments, and sometimes of several leaflets. The *corolla* is the colored leaves of the flower, termed *petals*, and also consists of one or several leaves. The *stamina* are the long slender bodies in the cup of the flower, composed of the filaments or thread, which is the supporting standard, and of the *anther*, which is the top of the filament, and contains the dust or them called *pollen*. The *pistil* is the column in the centre of the flower consisting of three parts: the *germen*, which is the base of the whole, and afterwards becomes the bearer of the seed; the *style*, which is the slender thread proceeding upwards from the germen; and on the top of t is is seated the *stigma;* this last receives the pollen and conveys the juice by its pores to the ground.

2. Does the flower always contain the stamina and pistils together?

No; they are sometimes separated in different flowers, and these flowers are sometimes seated on different plants, and at times on the same plant.

What is the fruit?

The fruit consists of the germen which swells and sometimes takes a different shape from its first form. It is sometimes large and juicy, and contains an inner capsule including the seed, as in the apple and pear, and is then called a *pomum*. Sometimes it is dry and husky, and is called a capsule, as in the ochra. When a succulent coating covers a hard pit, as in the plum, peach and nutmeg, it is called a *drupe*. It is called

a *berry* when several seeds are imbedded in a juicy fruit, as in the gooseberry, and the berry is compound when several grow together, as the blackberry. When it is a long pod opening in two valves, it is called *legumen*, as the pea and briar, when it shuts and opens in two valves with the seeds attached to a membranaceous receptacle inside the valves, and the seeds attached to the valves, called a *silique*, as in stock July flower, mustard, &c. The fruit of the pine is called a *strobile*.

What is the seed?

The seed is the final product of the plant, and is in fact the egg which serves to renew the species. It consists of three parts. The two principal ones, which, when the seed begins to germinate, show themselves first, are called *cotyledons*, and are the two lobes of the seed. Between these is a small body called the *corde*, consisting of two parts; one sharp-pointed, which as the seed grows proceeds upwards and becomes the stem, and the other, which descends into the earth and becomes the root.

Is there another part of the plant connected with the flower and fruit?

Yes—the *receptacle*; which is the base of the flower and fruit. We may observe this in the sunflower: it is the cup which remains after the flower and seed have been taken out.

Having considered the flower itself and fruit, let us next examine the manner in which the flowers are arranged on the stem: What is this called?

It is called the *inflorescence*, and is of several different kinds, all of which have a distinct name, such as the *verticil* or *whorl*, the *fascicle*, the *corymb*, the *spike*, the *panicle*, the *raceme*, the *capitulum*, the *umbel*, the *cyme*, and the *thyrse*.

1. The *verticil* is when the flowers are inserted around the stem in a circle; e. g. the dead nettle.

2. The *fascicle* or tuft is an arrangement of the flowers into a close bundle.

3. The *corymb* is when the foot-stalks of the flowers gradually shorten as they approach the summit of the stem, so that the tops of the whole are even, as in the millefoils or yarrow.

4. The *spike* is a close arrangement of the flowers without foot-stalks along the top of the stem, as the plaintain.

5. The *panicle* is like the preceding, but each flower has a foot-stalk.

5. The *raceme* is a cluster of flowers, each of which has its own foot-stalk, but the whole are united in one common foot-stalk, as a bunch of currants.

7. The *capitulum* or little head is a globular arrangement of the flowers, as the bachelor's button, or globe amaranth, *gomphrena*.

8. The *umbel* is when, like the sticks of the umbrella, the foot-stalks are of one length and proceed from a common centre, as in the milkweed, asclepias and in the parsnip.

9. The *cyme* is like an umbel, but the foot-stalks are divided variously and alternately, as in the snowball and elder.

10. The *thyrse* is a panicle of an oval figure, and a good example is the *lilac*.

[For the N. Y. Farmer and Horticultural Repository.]

ART. 97.—*Adlum's Catawba Wine.—Extract of a letter from* JOHN ADLUM, Esq. *of Columbia District, author of an instructive Memoir on the Cultivation of the Vine, to Dr.* MITCHELL, *dated at his Vineyard, near Georgetown, May* 21, 1828.

I send for your acceptance two bottles of Catawba wine, and a book on the cultivation of the vine and making wine in America. The wine was made by myself; and the book contains all my practice in both branches of the business, with large extracts from other authors.

The vine from which the liquid was made is a native of our country, and never had any brandy added to it. It is generally much esteemed for its salubrious qualities.

All wines from our native grapes, have one quality, I believe, peculiar to themselves, of warming the stomach and moderately stimulating the system (where no brandy is added) and then passing off without affecting the head or stomach, or leaving any heat after it; and, although it is sweet, it does not clog, or produce any disagreeable sensation after drinking it, as far as six or eight glasses, which I have frequently tried.

If, after dinner, I drink three glasses of either Madeira or Sherry, I have to rise in the course of the night, wash my mouth, and drink water frequently. Whether the wines imported now are not so good as they were forty years ago, I do not certainly know; but I do not believe they are; for then I could drink the best part of a bottle after dinner without feeling any unpleasant sensation of thirst after I went to bed: but it is now otherwise.

When the indolent Portuguese had the wine-vaults of the island of Madeira in their hands, the wine was suffered to get old by time; but now it is made old in a fifth or sixth part of the time it formerly took, by the foreigners who have monopolized the wine trade there, especially the English. An eminent wine merchant informed me some days since, that the present

exporters from Madeira told him, on his complaining that they did not sell or send such good wine as they formerly used to do, that such was actually the fact. The old wine that was in the vats when the present proprietors purchased them from the Portuguese, was used up by mixing it with wines of a more recent date; and of course they were obliged to send him such as they had.

I am much mistaken if my Catawba wine will not be of more advantage to the debilitated and convalescent from disease, than any foreign wines, which are much stronger. And it will be drunk with the more satisfaction, as twice the quantity may be taken without any symptom of intoxication. As the taste is pleasant, I trust it will produce a more agreeable and wholesome effect. However, I wish you to make trial of it, and then give me your opinion.

For the N Y. Farmer and Horticultural Repository.

ART. 98.—*Account of the nature and state of American Horticulture, formed from a long series of actual practice and observation.—Continued from page* 110.

The view exhibited in my former remarks, may be considered favorable, as it is certainly very encouraging to the prospects of American Horticulture. But it is of a very different character from that of the northern countries of Europe. We are blest with a soil and climate whose favorable effects upon vegetation fill our country with a great proportion of the finest fruits and vegetable products, with the most moderate degree of care or cultivation, little more being necessary to be performed than the common cultivation bestowed on a well managed farm. In fact there is scarcely any garden product that the farmer cannot raise to perfection upon his ground with the same degree of care and manner of cultivation as is employed on his Indian corn. Look at the farmers, as they are generally called, on Long-Island and in other vicinities of large cities, and I think it would be difficult to determine where the line of separation is to be found, that characterises the agriculturalist from the horticulturalist. These men do, and every other cultivator of the ground in most parts of the United States, may raise every kind of garden vegetable in the same field with his corn, which is itself a most delicious culinary vegetable while in the tender ear; and all the fine varieties of pumpkins and squashes are strewed over some field of almost every man that deserves the name of a farmer. These, together with the abundant apple orchards, whose produce throughout the year in some shape or other, is never absent from the frugal housewife's kitchen, stamp a valuable character upon a considerable portion of delicious vegetable products with which the middle and eastern states every where abound. But they abound in such plenty and are so easily obtained that they seem scarcely to be considered as deserving the title of garden products; and even a certain author has had the audacity to tell Americans to their face that they are extremely deficient in garden products! That they may be deficient in appreciating their great value on account of their great abundance is a thing not impossible: but the vast profusion of the finest vegetables and fruits with which all the markets of our large towns are abundantly supplied, proves not only that we are not deficient, but rather exhibits such displays of garden products that it would be difficult to find the country that could upon the whole be justly considered to excel us either in the qualities or abundance of garden products. And here for the present we shall rest this part of the subject, and take a peep at those particular spots denominated gardens.

With the word garden it is customary to associate the idea of some particular department of an estate or farm, as being set apart for the purpose of raising whatever vegetable is useful for the table, and in its more extensive scale including those of ornament, &c. In some countries, such as England, many of the finer kinds of fruit and vegetables cannot be brought to maturity without the aid of garden walls and various other modes of applying artificial heat. Their gardens are beautiful enclosures, and all their departments and operations are arranged upon the most tasteful and scientific principles, and those men who are employed in the cultivation have generally to serve an apprenticeship in order to qualify them for the proper discharge of the duties of a gardener; and in this way all those who are capable of employing such means have beautiful places and abundant supplies of all the choicest garden products. But in this country there is no necessity for such expensive modes of gardening: every good farmer raises important supplies for the kitchen in the ordinary routine of cropping his land; and I am persuaded there is scarce a dwelling-house to be found in the country destitute of a particular spot allotted for the raising of a few culinary vegetables; and in these are generally to be found a choice selection of the most important garden products. One kind only appears to have been too much neglected, and that is the Asparagus, which, as it is a fine early spring vegetable, and of easy culture, I would recommend to have one bed of it in every garden spot in America. Thus far we have surveyed the actual state of American garden products, the contemplation of which must be extremely gratifying to every well-wisher to the country. Had we been under the necessity of using such

artificial means, as are necessary to bring such products to perfection in England, the appearance of our gardens would no doubt have been very superior to what they actually are in general: yet there are numbers of very fine specimens of skilful and ornamental gardening to be found in the vicinity of most of our large cites; and the day is no doubt fast approaching when our horticultural embellishments will bear a nearer proportion to our superior horticultural products. Those who are fond of surveying landscape gardening in its most grand and extensive scale, have only to take a tour through any of our old settlements. The state of Connecticut, in particular, presents one continued display of the most charming rural scenery perhaps ever conceived in the most extravagant imagination of poetical fancy; and from Shippan Point through Norwalk to Greenfield Hill, might be placed the Elysian Fields of the "Land of Steady Habits;" and which tract is certainly to Connecticut what the United States is to the rest of the world—the only true elysium upon earth.

AN AMERICAN HORTICULTURIST.

New York, June, 1828.

[From the Memoirs of the N. Y. Board of Agriculture.]

ART. 99.—*Improvement of a Sandy Soil.*

The proper method to correct the too great openness of sandy soils, is to mix them with clay, which is the most tenacious of all soils, and as an earth is compounded of alumina and silex, besides being generally found mixed with various constituent parts, both fossil and mineral, which causes it to abound in the food necessary almost to all plants. Where clay hills or bottoms therefore are contiguous to sandy soils the remedy is at hand, and it ought to be liberally carted on to the surfuce, well and judiciously mixed, and ploughed deeply in; for by that means an artificial tenacious soil is formed, and deposited at a proper depth, to arrest the moisture, and the essential parts of vegetable and animal matter within reach of the roots of plants. Where clay, however, cannot be conveniently had, sometimes lime may; and although lime and its compounds, such as marl and gypsum, are eminently useful in small quantities to sandy soils; yet there the object is to change the basis of the soil, and make it more tenacious, large quantities of lime may safely be applied, and have often been used with the best effects to the amount of 500 hundred bushels to the acre. But it should be observed that under these circumstances, the basis is almost changed from a silicious to a calcarious nature, and should be hereafter treated with a reference to this change. It frequently happens, however, that beds of lime are too distant from sandy soils, to make it advantageous to farmers to have recourse to them; and where marl and clay are equally expensive, other economical practices must be observed to insure fertility. To effect this, every description of vegetable and animal manure within the control of the farmer should be carefully saved and applied. The theory of these manures has already been explained: If carefully put into the ground with a due regard to the me hod of saving them, even their lightest essential parts which are given off during fermention, may be appropriated for the benefit of the growing plant; and their other constituent parts as they are gradually developed in the decomposition of the manures, will enter into their new organization, leaving behind only the fibrous matter, which is the frame-work of plants, and which is the most insoluble of their parts. Another great resource is the peat or vegetable mould which frequently abounds in the vicinity of sandy districts. This rich vegetable matter, when properly pulverized, may be mixed with the soil, or used as a top dressing, with the best possible effects; and where it can be had in sufficient quantities, and conveniently, the fertility of a sandy soil is as easily attained as that of any other. In the absence, however, of peat and vegetable substances of that kind, the cultivation of green crops may be relied on for fertilizing the land and preparing it for grain. Rape, when sown on sandy land properly manured, yields a vegetable crop more beneficial perhaps than any other; for nothing fattens sheep more rapidly, or at a more reasonable period: it is in perfection when grass is beginnig to decline, and is finished exactly at the time when turnips ought to be begun upon. The soil is made much more compact by the treading of the sheep; and whilst they get fat themselves, they are fattening the earth and laying a subsstantial foundation for a crop of grain. Turnips, also, fed off upon the ground, prepare it in the same admirable manner. There are also other modes of making green crops subservient to fertility, by using them as vegetable manures. Buckwheat and clover when in full blossom, may be ploughed in, and wheat sown with confidence on the leys. The decomposition of these vegetables goes on more rapidly when they are in full blossom, and a greater quantity of soluble matter is obtained from them in that state; and the fibrous matter gives a solidity to the soil, which it did not possess. In the sandy soils, however, of the state of New York, particularly those in the interior, no fossil manure induces fertility at a smaller expense than gypsum; and happily for many of the farming districts of this state, it is an article which abounds in the state, and can also be imported at a moderate expense; whilst even a very frugal use of it is attended with very excellent effects. By conti-

nually adding fossil, vegetable and animal manures to a pure sandy soil, it may in the end be converted into a rich permanent loam, capable of sustaining a great population, and the resources of a nation be thereby greatly increased. Before, however, this part of the subject is dismissed, I shall observe, that all these permeable sandy soils should be cultivated with a great deal of judgment; that they ought to be seldom ploughed, for ploughing destroys the compactness of the soil if often repeated; but when they are put under the plough it should be done well. Deep ploughing or trenching should be had recourse to; the exhausted surface should be turned to the bottom; and the former bottom enriched with the vegetable and animal solutions which had drained from the top, together with the subsided particles of fossil manure, should be brought to the top. The first course in these rotations upon such soils, should be green crops and roots, to be eaten from the ground by live stock. It is by an economy of this kind, that a great part of Flanders, which was formerly as barren as sand could be, has been converted into a never-failing rich loam, and a very valuable rotation introduced there. And it is by similar means that the celebrated Mr. Coke, of Norfolk, in England, has succeeded in redeeming almost a whole country from barrennes, and has been the greatest benefactor to his country which the age has produced.

ART. 100.—*Retrograde motion of the juice of Oranges during winter.—Extract of a letter from* Dr. J. Bond Read *of Savannah to* Dr. Samuel L. Mitchill.—*Communicated for the N. Y. Farmer and Horticultural Repository.*

I have given in charge of Dr. Walteins for you, three oranges, for the purpose of showing the return of the juice into the fruit in the spring succeeding the winter during which the oranges hung on the trees. Two are from East Florida, and present to my mind proof of the secession and return of the sap. The third orange is the growth of this state, and is, I presume, an individual of the second crop, which is not uncommon in a mild winter. I trouble you with these articles of fruit and my remarks, because doubts have been expresed, whether the juice of the orange having once left the fruit during the winter months ever returned into it. Mr. Stiles, an extensive planter in Georgia, and who posseses many trees on Green Island, on our sea board, a little south east of this place, has stated in the Georgian, one of our news-papers, that the juice of the sour orange regularly returns into the fruit in the spring, on his plantation. And my friend Dr. Baldwin, during two visits which he made, accompanied by Dr. Cutler, to East Florida, during 1816 and 1817, in autumn and also the following spring, assured me that he found the fru it in the spring with the juice in it, and much improved from what it was in the fall and winter months—a fact I can readily believe.

ART. 101.—*The Saddle Horse.—Extracted from the Gentleman's New Pocket Farrier.*

When a horse is purchased for the saddle alone, it is to be presumed he must be clear of all defects, strike the fancy, entirely please the eye, and from his happy symmetry and due proportion of form, stand the second beauty in the world. When this is the case, he is seldom disposed of at too high a price. Amongst the great number of people in the United States, I am induced to believe, there are but few good judges of a horse calculated for the saddle. Indeed they are better informed upon almost any other subject that can be mentioned. But the Virginians have a large number of fine horses, and are accused of devoting too much attention to that beautiful animal. Among all the difficulties attending the affairs of common life, there is not, perhaps, a greater than that of choosing a beautiful, an elegant, or a good horse. Nor will this appear strange, when we consider the number of circumstances that are to be taken into consideration, with regard to shape, size, movements, limbs, marks, eyes, color, age, &c. &c.; which are so various that it would fill a volume to describe: And indeed the best judges are often obliged to content themselves with guessing at some things, unless they have sufficient time to make a thorough trial. If I were asked what were two of the most beautiful objects in nature, I would answer, that woman, lovely woman, before whose charms the soul of man bows with reverence and submission, stands unparalleled; next to this matchless paragon, a beautiful horse displays nature in her highest polish and greatest perfection. His gay and cheerful appearance, proudly prancing and bounding, his elegance of shape and smoothness of limbs, polish of skin, due proportion of form, and gracefulness of action, united to a mild, soft, faithful and patient disposition, raise him above the rest of the brute creation. I shall now proceed to lay down some rules, and to give some hints, for the examination of a horse previons to a purchase being made, to prevent the liberty of exaggeration, which is too frequently taken by dealers in those animals, and which too often terminates to the serious injury of the purchaser.

In order that he may have a just claim to beauty and elegance, his head must be small, thin, bony and tapering; his countenance lively and cheerful; his ears quick of action, high, erect, narrow, thin, and pointing together; his eyes large, round, full of

black, sparkling with cheerfulness, yet hushing his passions into order and obedience; his nostrils large and expanded, and when in motion, disclosing a deep red color; his brow and forehead smooth and not too flat; his nose somewhat rising, of good turn, and a little inclined to the Roman shape; his neck long, thin, delicate and arched; forming a beautiful gradation from the breast and shoulders; his mane half the width of his neck, thin and smooth; his shoulders high, tapering, and thrown well back; (this we should regard as of the first importance;) his breast plump, full, and of moderate width; his fore legs straight, flat, sinewy and thin; his arms large and muscular; his back short, and not too much swayed for strength and durability, but pretty even & straight; his body rather round and swelling than flat, and of proportionable size; his flanks plump and full, and the last rib approaching near the hip bones; his hips and buttocks full, round and well covered with muscles; his chine broad; his tail well placed, and naturally or artificially elegant, which adds much to his figure and gay appearance; his thighs long, from the hip to the haunch bone large and bulging with muscles; his hocks broad, sinewy, bony and clear of puffs; his hind legs from the hocks short, bending a little, rather than straight, flat and sinewy; his pasterns of modern length, small and bony; his hoofs cupped, small round and smooth; his hind parts not tucked, but of easy turn and graceful slope. When mounted, his appearance should be bold, lofty and majestic, his eyes shining with intrepidity and fire; his movements light and airy as a phantom, with a fairy step, that would scarce break a dew-drop; his actions smooth and graceful; his color should suit the taste of the purchaser, though a mahogany bay is certainly the best color; his marks large of irregular white, to light up the countenance; and at least *two white legs*,* which will add much to his beauty—though it must be acknowledged, that all the parts of a horse that are white, are much more tender than any other color. When a horse is rode by any person for you to judge of his gaits, you should have him moved towards you, from you, and finally by you; as you may have the opportunity of discovering if there is any turning in and out of his knees and ankles, before or behind, which is very objectionable. A well shaped horse will track as true, or his legs will follow each other in as direct a line, as the wheels of a well constructed carriage. For him to be considered a good riding horse, he should move with ease to himself, and pass over the ground with great rapidity. Hard steps, short going, and great apparent labor, is offensive to the sight, unpleasant to the rider, and fatiguing to the horse himself. With respect to the color of horses, people differ very widely; a black horse with white face and legs, a grey, or a mahogany bay, with white marks, when well kept, are all showy colors; but for actual service, experience has proved, that dark colors without any white feet, are far preferable.

The injury sustained by horses, called founder, is sometimes the effect of the cruelty of his master, and at other times brought on by injudicious treatment; but it is most frequently produced by carelessness, or a want of knowledge of the treatment necessary to those excellent animals on a journey.

Although the horse is endowed with the strength and powers of the lion, yet he seldom exerts either to the prejudice of his master. On the contrary, he shares with him in his labors, and seems to participate with him in his pleasures. Generous and persevering, he gives up his whole powers to the services of his master—and though bold and intrepid, he represses the natural fire and vivacity of his temper, and not only yields to the hand, but seems to consult the inclination of his rider.

But it must continue to be a matter of regret to every feeling mind, that these excellent qualities should be so often shamefully abused in the most necessary exertions; and the honest labors of this noble animal, thrown away to the ungrateful task of accomplishing the purposes of an unfeeling folly, or lavished in gratifying the expectations of an intemperate moment.

A horse may be foundered by excessive hard rides, permitting him to plunge deep into cold water, while hot and sweating, and drinking his fill of cold pond water, eating large quantities of new corn and fodder, and then briskly exercised; over-feeding with bran alone whilst performing hard labor, drinking plentifully at every branch in travelling, feeding with more than a horse can eat after being half starved, violent exercise on a full belly, or not permitting a horse who has travelled in a hot sun all day, to cool thoroughly before he is given as much as he can eat, drink, &c. &c.

* Here we differ decidedly with the author. We should not mind his having *one white* foot behind.—*Ed. Am. Farmer.*

ART. 102.—*The noxious qualities ascribed to the plant called Lythrum verticillatum.—Communicated for the N. Y. Farmer and Horticultural Repository.*

About a year ago Dr. Mitchill received from Dr. Ebenezer Blatchley a vegetable speciman, in such good order, as to enable a decision to be given on its botanical name and character. This *Lythrum* with its axillary, corimbose, subverticillate, aggregate, anp decandrous flowers, grows here and there from Florida to Canada. Some writers have given it the English name of *Loosestrife*; but as this term is also

applied to the *Lysimachia*, there is a manifest impropriety in calling by the same appellation two productions so dissimilar as these. Pursh observes that this is not common; and indeed if the account I am about to give of it is correct, farmers have reason to rejoice that it is so scarce.

It is said to possess the quality, after being eaten by gravid mares, cows, ewes and sows, of causing abortion by making them slink their young.

It grows spontaneously in wet and swampy places; along the Wallkill, in Ulster county, it grows in the water, being a showy perennial, from two to four feet high, with fine large purple flowers. The stems decline or bend down so much as to strike roots on their summits or upper extremities.

From this quality of the *Lythrum*, abounding with slender flexible shoots, arises its power to do mischief.

Dr. Blatchley assured Dr. Mitchell that he knew a tract of ground in New-Jersey, not very far from Hackinsack, where this plant flourished abundantly. It was swampy, but not so much so as to prevent its being mowed for a crop of coarse low-land grass. In the employment of the scythe, it frequently happened on the farms in this district, that twigs and branches of the *Lythrum* were cut off, mingled with the herbage, and dried with it into hay. By this means such part of the winter-fodder was charged with a sufficiency of this deleterious article to produce very serious effects when taken into the stomachs of female animals big with young.

He said the accidents were so frequent and the losses so considerable as to excite minute and careful inquiry into the cause; and whether the abortions arose from slender provinder, neglectful treatment, or bad husbandry, they have been boldly ascribed to the *Lythrum*. The poor plants have thus become the detestation of the farmers, who unsparingly root them out wherever they find them.

The gentleman related that direct experiments, such as feeding swine with meal of maize, and swill, strongly impregnated with the decoction of *Lythrum*, had produced miscarriages.

Though from the rarity of this plant, and from its growing only in low and wet places, it cannot extend its baneful effects to any considerable distance; yet, it is certainly interesting to know the opinions extant about it, and to procure, if possible, further information from persons whose situation may enable them to collect additional facts, and to obtain further information.

New York, July 1828.

ART. 103.—*Insects on Peach Trees.*

[The following able and useful article was written for the last number of the Massachusetts Agricultural Journal, in answer to a letter from John Lowell, Esq., President of the Massachusetts Agricultural Society, and one of the Editors of that Journal.]—*New-England Farmer.*

Milton, June 6, 1828.

Dear Sir: The insects which you sent, are *plant-lice*, or Aphides, peculiar to the leaves of the Peach-tree. Scarcely a plant exists to which a species is not appropriated, and hence most of them are called by the name of the plant on which they live; as *Aphis Rosæ*, *Aphis Cerasi*, *A. pruni*, *A. Brassicæ*, *&c.*; and this species may be called *Aphis persicæ*.

Aphides are furnished with a proboscis with which they puncture the leaves, their pedicels, the buds, or the young twigs of plants, and through it draw the sap for their nourishment. Those which derive it from leaves, proceed from minute eggs, deposited the preceding year, near the leaf-buds: the eggs endure the winter, and are hatched as soon as the buds begin to expand. The aphides, by pumping the sap from the under surface of the leaf, cause it to project above, in irregular convexities of a reddish color, and, at length, to become tortuous and changed in structure. Independently then, of the exhaustion of the sap, by those small insects, the tree suffers in consequence of the interruption or imperfect performance of the functions belonging to the leaves.

De Geer,* when describing the aphis of the elm, informs us that the aphis hatched from the egg in spring, the mother of the succeeding race, by repeatedly wounding the leaf, causes it to curl, and become unequal, thus forming a secure shelter for the young. Reaumur† asserts that it is only when the leaves are young and tender that this deformity is produced, and that, when the leaves are fully grown and tough, they are not altered in form by the punctures of aphides.

It is to be observed that the first generations of aphides are the most numerous, and that they progressively decrease in numbers. This arises from several causes; one is the slaughter of the race by its enemies; the second is that some become winged and fly away to other trees; the third cause is that they become gradually less prolific, till the appearance of a few oviparous females and still fewer males, terminates the series. This circumstance is a curious fact in physiology. A single impregnation in the autumn is sufficient for the fecundation of all the generations the next year. Prolific females are only produced, and these, at first, in great numbers; though their successors still continue to bring forth their kind, the energy of the impregnation would appear to be gradually lessened from the gradual decrease of their numbers, till, at last, it is exhausted

* Vol. iii. p 88. † Vol. iii. p. 296.

at the birth of a few males and females, whose care it is to provide for another era in the race, by the production of the above mentioned wonderfully fertilized eggs.

The aphis of the peach-tree is very briefly noticed by Kirby and Spence, (Introduct. vol. i. p. 202, edit. 2d.) but does not appear to have been described by entomological writers.

The economy and habits of all aphides are similar, or vary only as respects the part of the plants on which they subsist. The first which appear in spring are hatched from eggs, and are females only. They change their skins repeatedly, and perish soon after bringing forth their young. These young aphides proceed in the same way, being also viviparous; and the race is continued by a succession of viviparous females till autumn, when males and females both appear, and terminate the series for the season. The product of their union is however changed; for these females deposit the eggs before mentioned, which are destined to continue the species another year, through several successive generations without the intervention of males.

This is not the only wonderful fact* in the history of aphides: there is another which is equally true of all species.

Wherever aphides prevail there will ants endeavor to gain access. They are attracted by the sweetish fluid which exudes from the two little horns terminating the body of the aphis. The ants not only collect this from the surface of the leaves, but catch it as it is ejected by the aphides, and even compel them to yield it at their pleasure. This they effect by patting briskly and alternately each side of the body of the aphis with their antennæ; the flow of the fluid being thus stimulated and accelerated, and distilling drop by drop, is greedily swallowed by the successful operator.

Ants are, of course, on the most friendly terms with aphides; but the latter have redoubtable enemies of the insect kind. These are the larvæ of the lady-bug, (Coccinella,) that of the fœtid lace-winged fly, (Hemerobius,) and that of a two-winged fly, (Syrphus.)

The first is an elongated, flattened, blueish larva, spotted with yellow or red, and having six legs near the head. It may often be seen on lousy plants, where it regales itself by feasting on the numerous carcases which its superior size and strength enable it to slaughter. As the genus, Coccinella, not only abounds in species, but also in individuals, it is very generally diffused amongst plants, and its services are very considerable.

The second aphidivorous insect is the young of a fly, having 4 wings, resembling the most delicate lace, with brilliant eyes; but which, notwithstanding its beauty is extremely disgusting from the powerful excrementitious odour it exhales. This fly (Hemerobius *perla*,) suspends its eggs by clusters where aphides prevail. The larva is provided with a pair of large, curved and pointed teeth, moving laterally, and perforated with holes, through which it sucks the juices of its victims. The havoc it makes is astonishing; for one minute suffices to destroy and extract all the fluid of the largest aphis.

The last are the grubs of two-winged flies, (Syrphi,) of various kinds. Some of these flies are black with yellow spots on the body. I have often seen them about trees and plants depositing their eggs, which they do on the wing, like the bot-fly, curving the tail beneath a leaf and leaving an egg, where aphides are discovered. Others lay their eggs near the buds of trees, where the young may find their appropriate nourishment as soon as hatched. These grubs are pointed near the head, and larger towards the tail; their mouth is furnished with a triple-pointed dart, with which they pierce their prey, elevate it into the air, and devour it at leisure. What is more singular still, that this grub is entirely blind; but the provident care of the parent fly, in placing it in the very midst of the sluggish aphides, enables it, without much groping about, to detect and destroy them by hundreds.

Mr. Kirby says that on examining his currant bushes, which but a week before were infested by myriads of aphides, not one was to be found; but beneath each leaf were three or four full fed grubs, of the aphidivorous fly, surrounded by heaps of the slain, the trophies of their successful warfare. He also says that he has found it very easy to clear a plant or small tree of lice, by placing upon it several larvæ of Coccinella or Syrphi.

Aphides are not the only insects which cause the deformity in the leaves of trees. I am persuaded that a minute elongated Thrips contributes greatly to the same disease. (One of the larvæ was concealed in a leaf you sent me, and I have frequently seen them on the peach-tree.) I am led to the conclusion from having frequently examined small trees where the leaves were curled, without being able to discover either aphides, their skins, or the aphidivorous larvæ of the Thrips, or the perfect insect beneath nearly every leaf. Linneus conjectured that the monstrosity observed on the flowers of a kind of Lotus was caused by these minute insects: and I have repeatedly detected them in similar excrescences of leaves and flowers. Since they, like the aphides, are furnished with a proboscis, it is highly probable that, like them also, they use it in inflicting the

* See Kirby and Spence. Introduct. vol. ii p 89; do. vol. p. 176. Also Reaumur, and De Geer

same deleterious punctures. The largest Thrips does not exceed one line in length, and hence they are not readily detected.

I have tried various methods to destroy plant-lice, and give the preference to a decoction of tobacco. This may be thrown upon the trees by means of a garden engine; and if the stream be directed beneath the limbs with considerable force it will not dislodge but kill the lice. A solution of potash or soap suds, would, perhaps, answer the same purpose. Fumigation with tobacco is also successful where it is practicable.

Please excuse haste.

I am, dear sir,
very respectfully,
your humble serv't,
T. W. HARRIS.

ART. 104.—*Poisoning of Vegetables.—Extracted from the Quarterly Journal of Agriculture.*

It is well known that the health of an animal depends in a great measure on the nature of the substances which are received into its stomach; and it seems to be no less true, that the health of a plant also depends in a great measure upon the nature of the substances which are absorbed by its roots. Every species has its natural quantity and quality of food, supported by which it lives and propagates its kind, while man has the power to alter its circumstances in this respect, so as to cultivate or kill it. Plants are, indeed, more at the mercy of man than animals. The latter have generally the power of distinguishing between food and poison; but experiments induce the belief, that the plants suck in, though not perhaps with equal ease, every thing which comes in a state of solution in contact with their roots; and hence we may infer the signal practical advantage that will result, when we become well acquainted with the vegetable economy, and know about our soils as we do about ourselves—how to feed them when they are hungry, and cure them when they are sick. We believe that the success of our cultivation depends on supplying, in due proportion, and in sufficient quantity, the organic remains, the earths and salts which the plant naturally absorbs by its roots, and by keeping out of its way unhealthy or poisonous substances. That plants are structures of very considerable irritability, and subject to be hurt by a small matter, is proved by the fact, that we are often altogether unable to explain the reason why a crop fails, or why one plant lives and another in its neighborhood dies, and by many other facts which every one acquainted with vegetables must have observed. But nothing has come to light of greater interest on this head, than some experiments which have been recently made on the poisoning of plants. The author, to whose experience we chiefly allude at present, is M. Marce, of Geneva. He made use of such vegetable and metallic substances as are poisonous to animals, and the plants on which he tried these effects were young kidney beans, rose branches, and lilac trees.

His experiments on arsenic, which is known to be a deadly poison to animals, were thus conducted. A vessel containing two or three bean plants, each of five or six leaves, was watered with two ounces of water, containing twelve grains of oxide of arsenic in solution. At the end of from twenty-four to thirty-six hours, the plants had faded, the leaves drooped, and had even begun to turn yellow; the roots remained fresh, and appeared to be living. Attempts to restore the plants after twelve or eighteen hours, by abundant warming, failed to recover them. The leaves and stem of the dead plant gave, upon chemical examination, traces of arsenic. A branch of a rose-tree, including a flower, was gathered just as the rose began to blow: the stem was put into a vessel containing a solution of six grains of oxide of arsenic in an ounce of water. The flour and leaves soon showed symptoms of disease, and on the fifth day the whole branch was withered and dead, though only one-fifth of a grain of arsenic had been absorbed. Similar stems, placed in pure water, had, after five days, the roses fully expanded, and the leaves fresh and green.

On June 1st, a slit of one inch and a half in length was made in the stem of a lilac tree, the branch being about an inch in diameter. The slit extended to the pith. Fifteen or twenty grains of moistened arsenic were introduced, the cut was closed, and the stem retained its original position by osier ties. On the 8th, the leaves began to roll up at the extremity; on the 28th, the branches were dry, and in the second week of July, the whole of the stem was dry, and the tree itself dead. In about fifteen days after the first, a tree, which joined the former a little above the earth, shared the same fate, in consequence of its connexion with that into which the poison had been introduced. Other trees similarly cut, but without having been poisoned, suffered no kind of injury.

M. Marcet's experiments upon vegetable poisons are no less interesting, and still more wonderful, as indicating a degree of irritability in plants somewhat similar to that which depends on the nervous system in animals. After having ascertained that the bean plants could exist in a healthy state for five or six days, if immersed in the same quantity of spring water, he tried them with five or six grains of opium

dissolved in an ounce of water, the consequence of which was, that in the evening the leaves had drooped and by the middle of the next day they were dead beyond recovery. Other vegetable poisons of the narcotic class produced a similar effect. Hemlock was was equally fatal, and six grains of dry powdered foxglove, in an ounce of water, began to operate, by wrinkling some of the leaves of the bean in a few moments, which it completely killed in twenty-four hours. Oxalic acid or salt of sorrel, though found in commou and wood sorrel, and a great many plants, proved a very fatal poison to others. The absorption of one tenth part of a grain killed a rose branch and flower in forty-eight hours.

Besides these, some very interesting observations on the poisonous effects of certain gasses upon plants have lately been made by some eminent chemists in our own country, to which we shall again return, wishing to keep the subject in the eye of our readers, for, the discovery of facts like these, is calculated to throw much light upon agriculture. At present, however, we avoid it, in the hope that, by directing the attention of our readers to a notice of what has been already done, we may be furnished with more facts for which we have already an insatiable appetite.

[For the N Y. Farmer and Horticultural Repository.]

ART. 105.—*Agricultural Prospects in U. States.*

In this fluctuating world there is no *certainty* of success in our pursuits, even when we reason from the experience of our forefathers and of our own. The same course in those pursuits is not equally adapted to a long series of years: changes in the political condition of nations render them less or more dependent on the productions of others; improvements in the culture and manufacture of some articles make a correspondent change in the demand for them or for others. The introduction of new and improved varieties of grain, and breeds of horses and cattle, tends to depreciate the value of the old ones. All these, and many more constantly occurring circumstances, render it highly rational that the farmer should occasionally, at least, look beyond the bounds of his own farm, and regulate his conduct rather by the aspect and wants of the present time, than by the usages of his progenitors. A hasty comparison of the agricultural productions of our country some fifteen, twenty or more years past, with that of the present day, will convince the most unreflecting that we cannot expect the same plan and system of farming practiced by our fathers will be now attended with equal success. It would seem necessary then that those who belong to the age in which they live, and not to the past, should look abroad and consider the face of things; that they should reason concerning the consequences of improvement, and of the political changes among nations; that they should look forward to the probable demand for such and such articles, which their farms and other circumstances afford the greatest facilities to cultivate.

The mulberry tree grows indigenously in the U. States from Florida to Maine, and consequently silk may be manufactured in any part of the union. In 1766 more than 20,000 pounds of cocoons were exported from Georgia to England. In 1779 two hundred pounds of sewing silk were made in the town of Mansfield, in Connecticut; in 1810 the value of silk produced in Windham county, in same state, was estimated at $27,373. The attention is still paid to the production of silk, mostly by females, and found profitable. From the year 1821 to 1825 inclusive, the value of silk goods imported into the U. States, was upwards of *thirty-five millions* of dollars. Nothing is wanting but proper attention paid to the subject to enable the inhabitants of the U. States not only to supply domestic consumption with this costly article, but to export it.

At the commencement of the Revolution there were annually exported from the southern states more than *one million* pounds of indigo. In 182 only 5,286 lbs. were made in this country. Protecting duties will insure its cultivation.

Experiments have been tried in almost all parts of the United States, on the cultivation of the grape and the most satisfactory results have been obtained. There are vineyards in various parts of the country that have produced wines equal to the imported.

In Florida alone there are more than 7,000,00 of acres suitable for the cultivation of coffee, and 8,000,000 for the growth of the sugar cane.

It is a principle in political economy, apparent to common sense and common observation, that excessive competition in any one pursuit, lowers the prices of the products of that pursuit to a degree ruinous to those engaged, and injurious to the general public welfare. The present state of American agriculture exhibits a clear illustration of the unprofitableness of excessive competition. While our soil is adapted to the cultivation of nearly every useful vegetable production under the canopy of heaven the principal attention of our whole agricultural population is given to the raising of grain, tobacco and cotton: consequently there are great fluctuations in the prices. Flour has been known to vary from 4 to 15 dollars per barrel. In 1815—16 cotton sold for thirty cents per lb. and in 1827 for six cents. The remedy for these evils is not for all the cotton planters to abandon cotton for grain or tobacco, nor for the northern farmers to cease raising grain and give

their whole attention to growing wool or *vice versa*, but to multiply the channels of profitable industry as the variety of soil and climate will admit, and as the demands for consumption, the situation, habits and circumstances of the inhabitants hold out prospects for remuneration. When these pursuits are thus varied, the wants of almost every man afford a market for the products of his neighbor, of every town for the one adjoining; and thus throughout the whole country the public weal is promoted.

It is certain, from the present aspect of affairs among nations, that if the whole agricultural population of our country continue to devote their attention to the cultivation of the same articles they have for twenty years past, the remuneration for their labor, toil and sweat, will be inadequate and discouraging. Although there is a prospect of a war in Europe, perhaps very general in its extent too, yet the physical resources of the principal and most populous countries have been so much improved and augmented since the battle of Waterloo, that there is not much probability that foreign demands will raise the prices of our products. This being the case, it will be very judicious for every farmer to adapt the articles of cultivation to the probable future wants of our own country—a country, which for extent and variety of climate admits the cultivation of almost every article of the vegetable kingdom, which the warmth of the sun brings to perfection—a country, which, as to its fertility of soil, can be made, by the industry of its occupants, to flow with milk and honey: Having such a country, we say, it is out of character that one single murmur should be conveyed to the heavens from this wide-spread altar, that seems to be loaded with the fatness of the whole world. Though the wants of foreign nations should decrease, and American canvass that now whitens the bosom of the ocean, should be but seldom seen, it would only augur peace from abroad and plenty at home. But that our commerce will become annihilated, there is no danger, as long as we support the character we have hitherto sustained. Let the silks and many other articles of dress that now make our ladies look so lovely and elegant, be the growth and manufacture of our own. In the southern states, let the eye be delighted with fields of tropical fruits as well as those of cotton, rice and tobacco. For the medicated and poisonous wines of foreign avaricious traders, let there be substituted the pure juice of the grape ripened on our own soil and in our own climate. Let all this be done, and in this land of liberty and plenty we shall be free from those changes and pressures of the times that now so heavily afflict the country.

Vegetables are composed of oxigen, carbon, and hydrogen; water, of oxigen and hydrogen; air, of oxigen, ni-trogen and a small portion of carbonic acid gas.

ART. 106.—*How to produce Animals of either Sex. Extracted from the Lon. Med. and Physical Journal. Feb.* 1828

M. Garou de Buzareigues published, in 1825, some experiments relative to the reproduction of various domestic animals, more particularly of sheep. In a late number of Magendie's Journal he has resumed this subject, and has related the result of some experiments made with two separate flocks of sheep. In addition to these, there are many observations on the same subject applied to mares and cows; but the most important relate to sheep.

A flock of sheep was divided into two equal portions, and a smaller or greater number of male or female lambs were to be produced at the will of the proprietor in each of these. The plan adopted in order to insure this result, was to employ very young rams in that division of the flock from which it was desired to obtain females; and strong and vigorous rams of four or five years old in that from which males were to be procured. The first division was also recommended to have a more abundant supply of food, and more repose than usual, during the period of impregnation. The following table will show the effect of the first experiment.

	Sex of the lambs.	
Age of mothers.	Males.	Females.
2 years,	14	26
3 years,	16	29
4 years,	5	21
5 years and upwards,	18	8
Total	53	84
At another farm:—		
2 years,	7	3
3 years,	15	14
4 years,	33	14
5 years and upwards,	25	24
Total	80	55

Another experiment is thus related:—A flock of 106 sheep was divided into two sections of forty two each, one containing the strongest ewes, of four or five years of age; the second, consisting of the weakest, either less than four or more than five years old; the first section was intended to produce a greater number of females than the second; and after having been marked, and placed in a good pasturage, four rams, of about ten months old, were turned into them. The other section received two strong rams, each aged more than three years. The remainder of the flock, making up the number of 106 sheep, belonged to the shepherds; they are generally stronger and better nourishged than the rest, and these, forming a third section, were placed under circumstan-

ces similar to the second.

The result of the lambing was thus :

	Males.	Females.
First section, : : :	15	25
Second section, : : :	26	14
Third section, : : :	10	12
There were four double births ; two of which, in the first section, produced : : : : : :		4
The two others, belonging to the second and third sections, produced : : : : : : :	3	1

It is to be remarked, that the lambs proceeding from the section in which the young rams were imployed, were in all respects as fine as those begotten by the older and stronger rams.

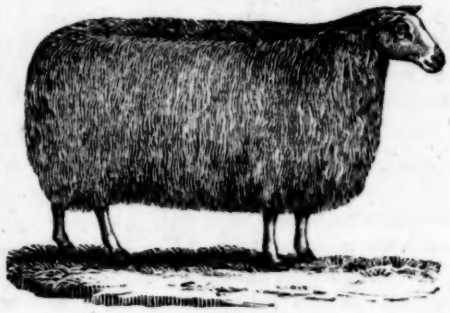
In connection with this part of the subject, we find, in another part of the communication, a remark of some importance. In 1825, twenty ewes, which had not borne for two years, received the rams clandestinely in the beginning of winter; they were almost all of them remarkably fat; they produced sixteen females and four males. Among the number of these ewes were two old ones, which had been put up to fatten in 1824, but could not be sold because they were not in sufficiently good condition: these gave one male and one female.

M. Garou next carries his inquiries to the reproductive power in the mare and cow. Respecting the first of these, he observes, that wishing to obtain more female than male colts, he fed his brood mares on fresh food; that he chose for propagation only such as had not been foaled or even nourished by the mother the preceeding year, and he did not give them the stallion until they gave evident signs of being in a heat. Five mares, so chosen, produced five female colts; and by following the same method, out of thirteen colts foaled that year, eleven were females; and one of the two males was the product of an old mare. He observes that some mares of a remarkably vigorous appetite always bring forth females; whilst those of delicate health have constantly produced males. The same remarks apply to the cow.

Descriptions of several soils.—By "loam" is meant any of the earths combined with decayed animal or vegetable matter; by "clayey-loam" that the greatest proportion is clay; by "sandy-loam" that the principal part is sand; by "brown-loan" that the greatest proportion consists of decayed vegetable matter; by "rich black loam," unequal proportions of sand, clay, and animal and vegetable matter, the clay greatly divided and in the least proportion, and the sand and vegetable matter in the greatest.

[For the New York Farmer and Horticultural Repository.]

ART. 107.—*The Improved Dishley or Leicester Sheep—with remarks, and the drawing of one imported, by* MR. JOHN BRENTNALL *of Rahway, New Jersey.*



The above is taken from a drawing of a sheep which was bred by Wm. Smith, Esq. of Dishley, Leicestershire, England, and imported into this country in May 1827, with three others. They were one year old, and selected by Amos Brentnall. Two of them are now in the possession of Charles H. Hall, Esq. of New York. The one of which the above is a drawing was last year sheared, and his fleece weighed fifteen pounds. The wool was from fifteen to twenty inches in length, and remarkably fine. Samples of it will be sent for the inspection of the curious. The wool of one of Mr. Hall's weighed fifteen pounds and three quarters, but not in length equal to mine.

This sheep was exhibited at Fulton Market June 25th, and sheared the same day—producing twelve pounds of clean fine wool, and making twenty seven pounds at two years old. On the following day he was exhibited at the same place, and pronounced by the best judges to be superior, taking him in every respect, to any they had ever seen. He weighs without his fleece 252 lbs.—is remarkably fine in his bone—exceeding most others in his loin and rumps —of a moderate height—handsome turned body—& of a very square back.—His pelt or skin is fine and soft, which is a sure indication that he is given to fat easily, which is the fact. They average about twenty pounds per quarter before two years old; and in England particularly, such is their disposition to fat, that they often weigh 20, 30, and even more pounds per quarter before they are eighteen months old. Altho' the winters in that country are milder than with us, and although the practice of feeding their sheep on turnips which is of much advantage, still I am confident that this breed will answer better for our farmers in general than any other.

This spring I sold to Mr. Law, a butcher of Paterson, four shearling wethers of one and two shear, for

thirteen dollars a peice. I here ought to remark that the age of sheep is counted in Englaud by their clippings; one shear is one year old; two shears are two years, &c.; so that a sheep is called a shearling, or one year old, until he is sheared the second time. This was the case with mine—two and three years old. The largest weighed in his mutton 125 pounds.

The length, fineness and quantity of the wool make it very suitable for various manufacturing pnrposes to which this country is paying increasing attention, and will insure to the farmers an average profit greater than the marino sheep. Their great increase too is another decided advantage. It is common for each sheep to raise two lambs; and I am disappointed if it so happens that there is but one, as I have sufficient proof that a good ewe will raise two, nearly if not quite, as well as one. This spring from twenty ewes I have had thirty five lambs.

Their propensity to thrive is very great. On the same pasture they will beeome fat while other sort of sheep will not gain one ounce. Some of my neighbors are in the habit of giving feed, corn or oats, to their sheep, throngh the winter and in the spring, for the purpose, as they say, of promoting the growth of the wool; but the greater part of my sheep never tasted corn or oats. I must confess, however, that it is a good plan, and that the grain thus fed out will neat more than if sold at the present prices; but I have refrained from doing it myself because my sheep keep so easily and that their superior condition may not be attributed to grain feeding.

This breed is known by the name of the Improved Leicesters, or Dishley sheep. Dishley was the place where the late Mr. Bakewell used to reside. This eminent breeder was the first who raised this breed of sheep, and reports said he was in possession of a secret for breeding in-and-in, that has not been discovered to this day. All the most eminent breeders in England since his day, have been trying their utmost skill and ingenuity in breediug in-and-in; but Mr. Bakewell's secret, if he had one, remains undiscovered. Such was the rage for this mode of breeding, that this sort of sheep was nearly spoiled before the custom was discontinued. It became a distinct race of animals: they were so much changed in appearance and in effect, that they were reverse of what they were before—light in their wool, bare on their bellies, and so delicate and weak that it was found almost impossible to raise their lambs. I would not be understood to say that breeding from the same blood cannot be done to advantage, for I believe it can, under certain limitations—provided too, that the person making the trial understands what relationship to make to insure the desired result. One of the greatest requisites in the art of breeding is for a man to have sufficient experience to make him a good judge, and capable of making a proper selection of the male and female. When you put a first-rate mare to a first-rate horse, this will will not insure a first-rate colt; but *it is fair to suppose it may.* Though the colt may not possess those rare qualities of speed, temper, or disposition that his parents did; though this is the case, if his parents' blood was genuine, pure, and regularly descended, still he is to be prized for his descent. I would here mention a fact within my knowlege that occured in the neighborhood of my nativity.

A horse, which was named *Fireaway,* the property of the present king of England when prince of Wales, was of good blood and extraordinarily handsome, and well made in all parts. His performance, of course, was expected to be equal if not superior to that of his parents, which was great. He was put to training, but found deficient in all those qualities in which he was expected to excel. Consequently he was pronounced worthless; but his symmetry and beauty were such that the Prince could not think of giving him up, aud ordered him to be kept for his charger and review horse. On some accident happening to him he was given to tbe Earl of Harrington, and by him sent to his estate at Sawley. Here he was kept a number of years, getting a few or no mares, (owing to bad repute and high prices demanded,) and was finally sold at public auction. I attended and saw him struck off for three guineas. He was in a neglected condition, and was bought by a poor farmer who became the sport of all present for his purchase. This man took him home, got him in a better condition, and then advertised for mares at one guinea each. The beauty of the horse and the cheapness of the price induced some farmers to put their mares to him. The following spring their mares brought fine colts. Such was his success in getting fine colts, even from the very worst mares, that in a few seasons, the price was increased to six guineas. His fame was spread throughout all England, and a Fireway colt always met with a ready and good sale. Finally he was an advantage to the country, a great profit to the farmers in the vicinity, and before he was entirely superannuated, his owner became a rich man.

But to return. Mr. R. Colemns and his brother have done much to improve this sort of sheep, as well as neat cattle. In looking over his catalogue for 1818, I find that he sold 100 ewe lambs for 758 pounds, and 22 rams for 865 pounds sterling. His whole sales of cattle and sheep amounted to 9496*l.* Since that time no man in England has had or now has better sheep than Mr. Smith of Dishley. He is in the habit, on the eighth day of June, and for a week from that day, of holding a show of his rams for the purpose of letting them out for the season. At these shows it is common to let out rams for 100 guineas,

equal to 500 dollars a piece, and some even for far more. He makes it a rule to obtain 3000 pounds a year, equal to 13 or 14,000 dollars for the use of his rams.

[The description given by Mr. Brentnall corresponds with that in the first vol. of the Board of Agriculture of New York, published in 1821, with the exception of where the writer says "I think both the carcass and the wool are too heavy and coarse for our purposes" without further improvements. It is probable that they have been improved since that time; indeed they have, as the prefix 'Improved' implies. The Dishley breed was introduced into this country during the last war. Several rams were captured in a British vesel, and fell into the hands of some farmers from England who knew their value; but the introduction of the breed has been slow.]

ART. 108.—*Proceedings of the New York Horticultural Society.*

New York, June 3, 1828.

A branch of Cherry with ripe fruit (of the redheart) was presented by Mr. Oakley.

Mr. Aymar presented flowering specimens, viz.: *Tradescantia virginica*—*Robinia viscosa*, Rose acacia—*Phlox maculata*, spotted lichnidia—*Dianthus barbatus*, Sweetwilliam—*Cheiranthus cheiri*, Wallflower, and several Roses.

Mr. W. Phelan several varieties of *Geranium*, viz.: Dutchess of Bedford—George IV.—Ignescence, &c.

Mr. D. Phelan 3 heads of Cauliflower, viz.: 1 head 20 inches in circumference, weighing 2 lb. 4 oz.—1 do. 25 1-2 do. do. w'g. 2 lb. 11 1-2 oz.—1 do. 19 1-2 do. do. w'g. 2 lb. 2 1-2 oz.

Mr. John Curr 3 heads of Cauliflower, viz.: 1 head 20 1-2 in. circumf. and 1 do. 18 do. do. w'g. 2 lb. 11 1-2 oz.—1 do. 17 3-4 do. do. w'g. 1 lb. 5 1-2 oz.

Mr. T. Kinnersley 2 Cabbages, w'g. 4 lb. 6 oz. —2 do. do. 3 lb. 14 oz.

Mr. J. Adams 2 Cabbages, w'g. 3 lb. 9 1-2 oz. 2 do. do. 2 lb. 1 1-2 oz.—1 Lettuce, do. 1 lb. 12 oz.

June 10, 1828.

Mr. Parmentier exhibited specimens of *Geranium*, viz. 4 Seedlings raised by himself from the seed of *Pelargonium grandidentatum*—a Rose, of the variety called "*Agnes Maxwell*," large double pale, raised by himself from seed—a Rose of the variety called "*Emperor of Negro*," very dark purple color, also raised by himself from seed—a Rose, *double carnation* variety, of which the petals are similar to the carnation, imported by him two years ago.

Mr. D. Phelan, from Dr. Hosack's garden, exhibited two cucumbers, one of which was 9 1-2 inches long, the other 9—3 Cauliflowers, 1 measuring 27 inches and weighing 4 lb. 7 oz.—1 do. 21 do. do. 4 lb. 7 1-2 oz.—1 do. 27 1-2 do. do. 5 lb.; also fine flowering specimens of Magnolia, Carnation, Digitalis, Campanula, and Scarlet Lychnis, &c.

Mr. Cooper exhibited specimens of *Rosa multiflora*, *Feather Hyacinth* and Single white Rose.

Mr. Combault exhibited specimens of Red Onion 1 1-2 inches diameter.

Mr. Oakley Cherries, "May Duke."

Mr. Hattrick do. do.

June 17th, 1828.

Large Cherries of Frazer's black Tartarian were presented—from Mr. Gelston.

Mr. D. Phelan, from Dr. Hosack's garden, the following flowers: *Penstemon glabra*, *Œnothera Frazeri*, *Hydrangia quercifolia*, *Potentilla fruticosa*, *Geranium*, *Phlox paniculata*, *Cymbidium sinense*, *Dianella*, *Veronica spicata a. variegata*, *Serissa fœtida*, *Cerinthe major*, *Thalictrum*, *Lythrum salicaria*, *Iris siberica*, *Coreopsis*, *Antirrhinum genistæfolium*, *Delphinium grandiflorum*.

Mr. Charles Oakley specimens of *Colutea arborea*, *Spiræa opulifolia*.

June 24, 1828.

Mr. Kinnersley presented 3 fine large cucumbers, (green prickly.)

Mr. Smith, Cherries, "Harrison's heart."

Mr. Groshon, do. "Grafton," from Mr. Vandervoort's garden.

Mr. Smith, Flowers of Pink, double Sweetwilliam (*Dianthus barbatus.*)

Mr. Wm. Curr exhibited specimens of Lettuce of the following dimensions: 1 head weighing 2 lb. 1 oz.; 1 do. do. 2 lb. 2 oz.; 1 do. do. 2 lb. 4 oz.; 1 do. do. 2 lb. 1 oz.

Mr. Cooke exhibited some Raspberries, "Red and yellow Antwerp."

A superb specimen of *Amaryllis Johnsonii* was exhibited, from the garden of Dr. Hosack.

Mr. Wm. Phelan exhibited a variety of specimens of *Geranium*, among which were the kinds "George IV." and "Triple Alliance."

ART. 109.—*Extract of a letter from* Wm. Whitman, Esq. *of South Carolina, to* Wm. Prince, *proprietor of the Linnean Botannic Garden, relative to Inoculating the Black Mulbury of Europe on the Native Species.* Communicated for the N. York Farmer and Horticultural Repository.

I received your trees in good order. I thank you

for your information respecting them, and with pleasure give you the information relative to the English Mulberry. They were budded in the usual manner; the time was between the first of July and September, in which time they can be done with success, but the earlier in July the better; by the time that the first spring shoots are ready, and the buds begin to sprout again, care must be taken to insert the bud as soon as possible, before the parts get brown and the milk runs out. I have understood from Mr. Nosette our principal Botanist here, that he repeatedly tried on the White Mulberry, but without success. He recommends the Black (*Morus rubra* of Pursh) as the proper kind to bud upon: those of mine are of the Black. I have found in budding that it is best to make the cross cut at the bottom of the slit, thus ⊥; and push the bud up. The advantages are that the bud is pushed up under the tight bark a little above the commencement of the slit and remains firm, and the rain when it runs down the tree can not get into the bud, but glances off; whereas in the other way it runs into the cross cut on the top, and weakens the sap, and destroys the bud. The wood in the bud that you wish to insert must be taken out carefully, so as not to destroy the germ of the bud. If you wish, in the proper season which is I think November or December, I will send you some of our native Mulberry trees, and any others you may wish that I have shall be sent you gratis.

ART. 110.—*On Climate, in reference to the principles of vegetation and tillage.* [By John Young, Esq., *of Nova Scotia.*]

Man, in his individual capacity, is a weak and evanescent being. The effects of his power are confined to the small portion of matter on which he acts: and the physical laws of the universe are beyond his control. Such is his feebleness in fact, when contrasted with their mighty operations, that he seems rather subjected to their agency, than capable of ruling or directing them. Viewed in his collective capacity, his power swells into importance, and causes effects, which, while they astonish the imagination, gratify his vanity; and in nothing are they so apparent as in his having cleared and embellished the earth, that he might render it the source of his subsistence, the place of his residence, and the theatre of his glory. On it he has levelled the mountains and filled up the vallies; he has subdued the wilderness and tamed its savage inhabitants; he has constructed canals, aqueducts and bridges; he has piled up the pyramid and pointed the obelisk; he has reared monasteries, villages and cities: and although he could not resist and struggle against the laws of the material world, he has rendered them subservient to his use. Indeed, without his presiding industry, these laws are apt to run riot, and waste themselves in a useless and cumbersome profusion. The trees of the forest thicken and embower, till the face of day is hidden from his sight; the brambles and shrubs entwine on the surface, and present to him an almost impervious barrier; the waters stagnate in marshes, at once destroying the salubrity of the air and the fertility of the ground; and the useful plants are scattered at random, spring up at the side of obnoxious weeds, and with difficulty are collected and propagated for the convenience of social life. Such is the picture of all rude countries, not inhabited by men, long and considerably advanced in arts and industry.

The changes which are effected on the surface of the globe by the plastic hand of human application, pursued through a succession of ages and generations, are much more wonderful than we are apt to imagine. An old settled country, smiling in all its richness and verdure of corn fields and meadows, has very little resemblance to its original state, either in its geographical features or in its climate. The Hercynian forest, which reached from the source of the Danube along its left bank to an immeasurable and unknown distance, traversing the whole of Germany till it touched the Euxine, and then starting off and plouging into the wilds of Siberia, has not left one trace of its limits except on the page of history; and the Ardenne, which in the time of Augustus embraced France like a girdle, has been entirely cudown, with the exception of a few remaining patches at Thionville; and the ground, which both overshadowed, is now thickly studded with chateaus, hamlets and cities. I shall not therefore be able more effectually to fulfil the promise made last week, of demonstrating that the state of cultivation materially affects climate, than by appealing to history to prove, that in Europe and Asia, a mighty alteration has been produced since the first authentic accounts of these countries. If we shall find on examination, that in those regions lying within the 40th and 50th degrees of north latitude, winter reigned with a severity now totally unknown, that fruits and plants in these days grow abundantly where they would not thrive 2,000 yaars ago, we shall establish, beyond all controversy, the influence of cultivation upon climate.

Herodotus, the father of history, informs us, that on the north shores of the Black Sea, and round the ancient Palus Mæotis, the duration of winter was for eight months, during which the ground was entirely buried in snow; and that all the countries beyond this line were accounted uninhabitable. Ovid, who

was banished to the banks of the Euxine, describes the severity of the weather as insupportable; and distinctly states, that he crossed the Black Sea upon the ice, and that he saw oxen and carriages frequently passing—a circumstance, which we would esteem fabulous, were it not confirmed by other concurrent facts and testimonies. The ancient historians unite in asserting, that all the lakes, marshes and rivers of Gaul, Germany, Thrace and Dacia, were every winter frozen over to a great depth and presented a firm footing to the hordes of barbarians on which to rush down and pillage the southern provinces. Diodorus Siculus, Strabo, P. Mela, Seneca, Pliny the naturalist, Herodian and Justin are unanimous in delineating these countries as of horrid feature, and under the dominion of ice and snow the greater half of the year. Their accounts are so inapplicable to these now fair regions of the earth that had they not specified the rivers and seas by name, we would have been mistrustful, and supposed them engaged in the description of the inhospitable climate of Lapland or Siberia.

Virgil is so distinct on this head, and is, besides, an author in every body's hands, that it may be only necessary, in order to avoid all parade of Greek and Latin quotations, to rest the facts upon his simple attestation. He is contrasting the shepherd life on the plains of Lybia with what is round the sea of Asoph, on the banks of the Danube, and at the foot of Rhodope—a mountain in Thrace—places situated between the 40th and 48th degrees of latitude. and exactly corresponding with the parallel of Nova Scocia. In their manners and habits they will be found much more akin to those of the Esquimaux than to the European nations now occupying that delightful tract. "They live," says he, "in caves dug deep in the ground, and clothe their bodies with skins and furs. They catch the deer, not with hounds let loose, nor with toils and nets, but sinking in the yielding snow and incapable of escape. Their garments stiffen on their backs, and the icicles hang from their beards; even the wine which they drink, is distributed in frozen masses, and cut with their hatchets."

Those, who are curious and versed in Latin, may consult Cæsar's Commentaries; and a crowd of facts incidentally mentioned by that historion, will corroborate the previous accounts. In his second expedition to Britain, he stopped in the midst of his conquests, that he might re-embark his army, and return to Gaul before the autumnal equinox; so much dreaded was the approach of winter, and so hazardous the navigation, though at that early season of the year. At another time, when he attacked the Helvii, he crossed the mountains of Cevennes, in the south of France, which were covered with six feet of snow, and esteemed impassable. His appearance before the enemy was quite unexpected, as they always thought themselves safe from invasion during the depths of winter. (A)

But this is not all. Climate is determined no less by the vegetable and animal productions, which are found in it, than by the unequivocal testimony of history. Columella, in the reign of Claudian, is the first writer who speaks of the culture of the vine in Gaul; and he infers from this and other facts, that the climate of those days was ameliorating. "I find that it is the conviction of many valuable writers," says he, "that the state of the atmosphere changes in a series of years; for Saserna, in those books which he has left us upon agriculture, concludes that the atmosphere has undergone some change, because certain districts which were formerly incapable of producing vines and olives on account of the severity of the winter, now begin to yield abundance of wine and oil, from the climate having become milder and warmer." Diodorus Siculus and Tacitus agree that the intensity of congelation in Pannonia and Thrace, in Gaul and Germany, was such as to render doubtful the culture of vines and olives, and any kind of fruit trees; and that to preserve them during winter, they covered up their roots with dung—a precaution now totally useless in the three first countries, and only practised in the northern parts of the last.

The animals, too, which inhabited these parallels during the period now under review, clearly prove, not only the uncultivated state of the country, but the severity of the climate. The Elk, the Buffalo, and the Unicorn, were found in the Hercynian forest, and some are of opinion that the Reindeer frequented this illimitable wilderness. Pausanius the geographer expressly states, that in Thrace there were white bears and swine even in his day—animals which have now abandoned all the warmer climates of Europe, and retreated into the desolate and icy wastes of the arctic circle. These collected facts and concurrent testimonies will bear us out in the conclusion, that the whole country from Spain to India, lying between the 40th and 50th parallels, was about 2,000 years ago nearly in the same situation with respect to climate as the corresponding places now are in North America. (B)

[The following are comments upon the above by Mr. William Darby, which we copy from the American Farmer.]

A

It may well be questioned whether writers on so grave a subject as the climate of a new country, should quote and rely on mere poetic description, as recorded facts. It is time that the true value of *facts*

in inductive reasoning, should be felt. In respect to the statements in Cæsar's Commentaries, they are to be depended upon as facts, as far as they go, but amount to no more, than that the winter when the event transpired, was one of those very severe seasons, which may be found recorded in Rees' Cyclopedia, article frost, and of which the following are a few examples.

A. D. 508 Rivers in Britain frozen two months.
558 Danube frozen.
695 Thames frozen six weeks—booths built on it.

759, 827, 859, 908, 923, 987, 998, were all remarkable in Europe for intense frosts, and in 1035, a destructive frost occurred on June 24th.

1063, 1076, 1205, 1407, 1434, 1645, 1683, were all severe seasons, and in 1709, the Baltic, Adriatic and Bosphorous, were frozen. Since 1709, the winters of 1715, 1739, 1742, 1747, 1754, 1760, 1762, 1776, 1779—80, 1795, and some others, were intensely severe.

B.

How far the possibility exists or ever did exist, of the climates of such a range as that from Spain to India, ever assimilating among themselves, will be seen by a careful perusal of the geographical sketch I have sent for publication.

The writer of these quotations ought to have been put on his guard in respect to the inferences he has drawn, from the subsequent extract from Columella, who tt appears had precisely similar ideas on meteorological melioration, about 1800 years ago, and no doubt with just about as good evidence of correctness.

If we for a moment discard systems and resort to facts, it becomes demonstrable, that most of those assumptions respecting change of climate are formed from very inadequate elements. To set out right is a pre-requisite in any attempt at obtaining the object of our researches; and in that respect the writer of the preceding notices of climate seems to have acted on sound philosophical principles. He adduces difference of level, and exposure as the general cause of difference of climate along the same latitude, and so far a firm base was laid for a rational theory. But yielding to a *fond wish*, great atmospheric revolutions are supposed to have taken place where the permanent objects in nature have remained without change. It has appeared to me that the cheerlees aspect of an uncultivated country, has been the most fertile source of that opinion of melioration from cultivation. A country covered with houses, cleared fields, open roads, and other marks of civilized life, has a tendency to fill the mind with sensations of pleasure. In brief I indulge the hope that the evidence I have collected and remitted to the Farmer, will have the good effect of at least turning the mind of the reader to to a more careful attention to the general phenomina of climate,not merely of any one but of all countries.

ART. 111.—*Felling Timber.*—[Communicated for the N.Y. Farmer and Horticultural Repository.]

Different seasons of the year for felling timber that is designed for durability, are recommended by writers. Some say in May, while the sap is vigorously flowing; others in September, when the alburnum or white wood, is not so full of ascending sap, that contains saccharine matter, acids and mucilage, which ferment and produce the decomposition of the wood. The different and contradictory opinions arise in a great measure from partial experiments and too limited observation. There are many circumstances to be taken into consideration—the maturity of the tree, the nature of the soil, the difference in climate, the state of the season, and many others. Facts have been produced of trees felled in May lasting twice as long as those in February, and also *vice versa*. All writers we believe agree that peeling the bark in May and letting the tree stand for several months greatly promotes durability. The proper time can only be ascertained by the accumulation of facts; and for this accumulation there is no better way than for every farmer to record the time of felling his trees, with as many other circumstances as possible. Were farmers generally in the habit of keeping a diary, much more rapid progress might be made in agricultural knowledge.

ART. 112.—Miscellany:—*Prince on Horticulture—Bones—Oyster-Shells—Horn-Shavings—Bark—Sexuality of Plants—Olives—Supposed Influence of the Moon—Leith Walk Linnean Society—Agricultural School, near Londonderry, Ireland—Vegetable Extremes—Mould—French Industry Tobacco—Large Geese—Vegetable Inoculation—Green Crops as a Manure—Raspberry—Wine.*

Prince on Horticulture.—Mr. Prince, who is so well known as an horticulturist, has published a short treatise on Gardening, containing, as he says, "some of the leading rules whose adoption has proved most successful, and intended as an accompaniment to the catalogues and an aid to those who are ignorant of the subject." A work of this moderate pretention would not excite much expectation; it contains, however, a mass of usefui information, and forms in our opinion a valuable contribution to the horticultural science of our country. Mr. Prince is the proprietor of one of the richest and most extensive garden establishments

of this or any country; and no expense or labor has been spared to collect fruit and ornamental plants of every description; and no where has so large a number of American species been brought together.

The work before us is particularly valuable as containing the results of long experience in acclimating foreign plants, and in domesticating many of our indigenous fruits which will hereafter form most important additions to the luxuries of our gardens.

A large portion of the work is devoted to the grape which, although not of greater importance as a national object of cultivation than the apple, still it is of the highest interest, and will we hope continue to be the subject of experiment with cultivators throughout the Union. We recommend the work to every lover of ornamental gardening as useful in pointing out the choicest kinds of shrubs and trees which most easily admit of profitable culture.

Bones.—It may at first be objected that a sufficient quantity cannot be procured, especially if every farmer attempts to procure them. Every farmer will not make the attempt, and none but the enterprizing will succeed. There is however much more of this material at hand than any one would suppose, who has not made an experiment of collecting it. In England this manure has been extensively used; it is broken in small pieces, in mills constructed for the purpose, and mixed with the soil or formed into composts—but more frequently the bones are partially burnt, and reduced to a brown powder for top dressing for various crops. Both of these modes however are bad: in the first the bones are not reduced fine enough, and in the latter the most valuable parts of the oil and mucilage are wastefully destroyed and nothing remains but a kind of lime. If the bones are broken as gypsum is usually broken and ground, in the same manner between a pair of heavy stones, a fine powder will be produced, weighing not less per bushel than gypsum, and admirably fitted to sow on a clean soil with grass seeds. In this way an experiment has been made, the result of which is perfectly satisfactory. A parcel of bones were collected and reduced in the manner last mentioned; the product was 120 bushels which were sowed with herds grass and clover seed, on twelve acres of oats and rye. The soil was principally clayey loam, much worn out and exhausted. The crop of grain was about the same that had been usually taken from the same field. Th grass seed took well, and the first season the clover for the most part of the field grew nearly as high as the stubble, at that time and subsequently more than realizing the expectation that had been excited by a manure deemed more valuable than gypsum. While the bones were preparing, although they all appeared perfectly dry, and many of them had been exposed to the sun and rain for years, it was found that a part of the parcel which had been broken down and left unmoved a few days, took on a degree of heat that the hand could scarcely bear—showing in a striking manner the readiness with which this manure will run into a state of putrefaction. The whole expense of collecting and reducing, and that under many disadvantages, did not exceed 15 cents per bushel, less than one third the price of gypsum.

In England this is esteemed a very durable manure, and "when sowed with grain on a poor calcareous soil, the crop was much superior to that which had not been dressed in the same way, and the grass crops on the same place afterwards for some length of time displayed a superiority and appeared more early."—*Notes to Davy's Agri. Chem.*

Oyster-Shells.—Where circumstances will admit of the transportation of oyster-shells by water forty or fifty miles, they can be delivered at eight cents per bushel, and large quantities may be obtained. It has been found that within a few miles of the sea side, that a dressing of 60 to 100 bushels to the acre, on a field of rye, made a very striking difference in the crop; that part of the field to which none were applied, being much inferior both in straw and berry. If useful in such situation, may it not be fairly inferred that they would be of more value 40 miles inland, where the soil would be entirely beyond the reach of the saline vapors from the sea? They are usually put on the land but partially broken. If some cheap mode were devised of reducing them to powder, their value would be greatly increased. In all cases, however, they should be used as soon after they are opened as possible, as there is some portion of animal matter attached to the shell; and in no case should they be burnt for manure, except when lime is required in preference to any thing else.—*Ib.*

Horn-Shavings.—Horn chips and shavings may be procured in considerable quantities wherever the manufacture of combs is extensively carried on. They are admirably prepared for the purposes of manure, either for land under tillage or as a top dressing for grass grounds; and when judiciously applied in either case, they have seldom if ever failed to make a rich return. As a manure for potatoes and corn they are found valuable; when applied to either at the time of hilling, covering them

with the soil, the good effects are immediately perceptible. The application of 50 bushels to the acre at the time of seeding a field of rye, in the autumn, would much improve the crop, and much more improve the land, if to be laid down to grass. It has been thought, that laying in a dry sandy soil, under grass, in a dry season, was injurious; it is probable, under such circumstances, the crop was not benefitted, but if there was enough grass to cover the shavings from the scorching sun, the succeeding crop would be materially increased by the application. But a situation in which there is no doubt of their efficacy, is, strong moist land under grass, the improvement of the crop from the first is very visible, and it continues for years. It is a warm, stimulating, permanent manure, and were it within reach of the generality of farmers, more might be said to encourage them to use it. Let any one who has the opportunity make trial of it, and he will hardly fail to discover its value. The usual price is about ten cents per bushel.—*Ib.*

Bark.—Tanners' spent bark, particularly oak, if its use is well understood, is not duly appreciated. When in its simple state, it appears perfectly inert and useless; but in fact it is not so. There are few materials, perhaps none, that so completely, by one application, break down and destroy the tenacity of a strong clay soil. This is frequently accomplished by ploughing in one heavy dressing of bark. The land then, however, without a supply of other manure, sometimes becomes sterile or unproductive. If the bark be combined with stable manure or quicklime, it becomes an active agent and answers a valuable purpose on land that has been cropped a number of years in succession, and there is thereby in some degree destitute of vegetable matter. As it costs but little besides the expense of carting, it may be added to the pile of compost and increase both its bulk and its value.—*Ib.*

Sexuality of Plants.—This remarkable structure of plants exemplifies the same indispensible process in the vegetable as in the animal kingdom. One of the most singular plants which exhibits this structure in a very striking manner, is the *Valisneria spiralis*, a species which is common to Europe as well as to this country. It is an aquatic, growing on the margin of rivers, and bearing its fertile or female flowers on a very long spiral foot-stalk, so that whatever depth the tide may cause in the waters, it always floats; the male flower, on the contrary, is attached to the stem, and is submersed until it is ready to blow, when it detaches itself from the stem under water, rises to the top, and carries its pollen to the female plant.

The same remarkable mode of fructification exists in a plant peculiar to this country. This is also an aquatic, very small, and much resembling a species moss. The whole plant is immersed in fresh water streams. The female flower is attached to a spiral stem so slender as scarcely to exceed the finest hair in diameter; the male is borne on the stem under water, and migrates at its maturity to the surface, sheds its pollen, which floats around the female plant until the office of fructification is performed, when it withers and dies. It is the *Udora canadensis* of Nuttall, and may be found in the months of July and August in most of the tributary streams of our rivers.

Olive.—Nothing that any Planter can do, will add so much to the value of his land, insure a certain and never-failing income to himself and his posterity, as planting the Olive.

Fields, however well cultivated in common crops, grow up in wild woods if thrown out for a few years. Buildings of the most useful and permanent kind hasten to decay from the hour they are finished;—and thus plantations, unless kept in order and cultivated, speedily become mere waste tracts of land or wilderness. But the Olive tree, if once brought to maturity, is everlasting as the the soil. Even if abandoned for years, the trees will continue the same, and as soon as the culture and care of them is resumed, the annual income is immediate, and secured to the happy possessor.

During the long and iron reign of Turkey over unhappy Greece, a period of tyranny and barbarism that would have depopulated any other country, and reduced it to desolation, the inhabitants have lived, and even in some measure thriven. It was not until their oppressors began to dig out the Olive trees by the roots that they reduced them to starvation. Formerly they contented themselves with merely cutting them down; but such is the durability of the root of the Olive, that the tree recovers itself so long as that is left in the ground: and hence it is, that the Greeks, though driven to the mountains, returned when the Turks had left their fields, and as the Olive roots soon put out bearing branches, the country speedily arose from its desolatiou.

Near Terni, the birth place of Tacitus, is a plantation of Olives two miles square, in which the trees are of such an age, as to lead to the assertion, that they are the same mentioned by Pliny, as existing there in the first century!—*Southern Agriculturist.*

Supposed Influence of the Moon.—There is an impression very general with gardeners, that the moon

has a particular effect on plants, especially in certain months. The gardeners near Paris gave the name of the *lune rousse* to the moon which, beginning in April, becomes full either at the end of the month, or more generally in May. According to them, the light of the moon, in the months of April and May, injures the shoots of plants; and, when the sky is clear, the leaves and buds exposed to this light become red or brown, and are killed, though the thermometer in the atmosphere is several degrees above the freezing point: they confirm this observation by remarking that, when the rays of the moon are stopped in consequence of the existence of clouds in the air, that then the plants are not injured, although the temperature and other circumstances are the same.

M. Arago explains this observation of practical men by a reference to the facts and principles established by Dr. Wells. He has shown that, in a clear night, exposed bodies may frequently have their temperature reduced below that of the surrounding atmosphere, solely by the effect of radiation, the difference being as much as six, seven, ten, or more degrees, but that it does not take place when the heavens are obscured. M. Arago then observes that the temperature is often more than four, five, or six degrees above the freezing point during the nights of April and May, and that when the night is clear, consequently, when the moon is bright, the temperature of the leaves and buds may often be brought, by radiation, below the freezing point, whilst the air remains above it, and, consequently, an effect be produced, which, though not dependent upon, accompanies the brilliant unobserved state of the moon; the absence of these injurious effects, when the moon is obscured, being also as perfectly accounted for by these principles, from the knowledge that the same clouds which obscure the moon will prevent the radiation of heat from the plants. Hence, as M. Arago remarks, the observation of the gardener is correct as far as it goes, though the interpretation of the effect which he generally gives is incorrect.—[*Annuaire du Bureau des Long.*, *Bul. Un.*, and *Quar. Jour.*, October, 1827.

Leith Walk Linnean Society.—In April, 1815, about twenty of the journeymen gardeners then employed in the Edinburgh College botanic garden and the Leith Walk nursery, formed themselves into a society for mutual instruction in matters relating to their profession. As the unsettled nature of their employment at the time prevented their entering into a permanent scheme, it was resolved, as an experiment, to devote the summer months to practical botany; and, as a preliminary step, to set about acquiring an accurate knowledge of the plants indiginous to the neighborhood of Edinburgh. The meetings were held every Monday evening in a school-room hired for the purpose. The subscription was 6d. each per week; the amount was laid out weekly in the purchase of elementary books, suited to the subject then under consideration. Wildenow's Elements of, and Smith's Introduction to, Botany, Hull's British Flora, Martin's Language of Botany, and the Epitome of Hortus Kewensis, were soon procured. The worthy president, Mr. Mackay, (now of Clapton) favored the society with the use of Lightfoot's Flora Scotica. Such formed the library at the outset; the books were lent out to the best advantage, and seemed to answer. The plan adopted was to appoint two of the members weekly, in their turn, to proceed in certain directions, and to collect all the indiginous plants they found in flower, which were handed to the secretary to arrange and name previously to laying before the meeting. At the meeting, all the plants collected in the course of the week were exhibited, and their habitats stated; the descriptions were read by the president from Lightfoot's Flora, and every term explained from Martin's Language of Botany.

By these means the members not only became practically acquainted with the native plants and their habitats, but they were gradually led into classification and terminology, in a way not unlikely to fix them on the memory. An alphabetical list of the plants examined was weekly handed to the collectors, in order that they might avoid gathering duplicates. In the course of the summer, most of the indigenous Flora of the neighborhood were collected, and a great taste for rural botany, and a spirit of emulation excited. In autumn, many of the members, as well as myself, left Edinburgh, to fill situations in various parts of the country; those who remained commenced *de novo* next spring, but with what success I never heard. In the course of my peregrinations throughout the empire, I have met with several of the original members, filling highly respectable situations, and who assured me that they looked back upon the summer of 1815 as one of the most profitable and pleasant periods of their lives.—*G. W. Irvine. Dublin, March*, 1827.—*Louden.*

Agricultural School, near Londonderry, Ireland.—The plan of combining labor with instruction is judicious; because the one will give a zest to the other, and the former contribute to health and industrious habits at the same time. It is gratifying to

contemplate in perspective the time, which, from the progress of things, must certainly one day arrive, when every gardener, agricultural laborer, and shepherd, shall have received the education contemplated in the following paragraph: in other words, when all those different branches of knowledge shall be taught in every parish school in the empire, and when every parish school shall have a large garden attached. How much more agreeable, entertaining, and invigorating it would be for schoolmasters and their pupils to go through such a course of instruction, than through the dull, half-useless routine at present followed, every gardener who has spent half a dozen years of his life attending a parish school in Scotland can very well judge.

The education of both classes of pupils should consist of a knowledge of nature, or of minerals, plants and animals, including physical geography, (termed natural history;) of chymistry, analysing, making new compounds, and turning to use the component parts of these bodies; of mechanics, bringing under control and rendering efficient, directing, concentrating, or diffusing, many of the *motive-powers* which chymistry and observation discover; of so much of mathematics (or a knowledge of the relations of numbers and quantities) as may be necessary to surveying, civil engineering, and other practical arts; and of the *practical application* by the pupils themselves of these branches of knowledge, chiefly to agricultural operations, including the culture of gardens, fruit, and forest trees. Drawing, as well as writing, should be taught, as a necessary accessary to the acquisition of all these branches of knowledge. History, including geography, legislation, political economy, including statistics, intellectual philosophy, poetry, and miscellaneous literature, should be secondary objects occasionally lectured on, chiefly with a view to private cultivation by means of a well selected library. Music, dancing, and gymnastic exercises, should be cultivated as amusements; and facilities for such amusements should be afforded by the pupils.—*Louden.*

Tobacco.—Gardeners in this vicinity use the powder or dust of tobacco to save the young and tender plants from being injured by insects. While the dew is on the ground the tobacco is thrown over the beds where the plants are just coming up: by this means their garden products are often saved from total destruction. Many plants are so compleatly eat off on their first breaking through the surface, that the sower is often deceived, supposing the seed never vegetated. With farmers no crop is subject to greater injury than that of turnips. We see not why this tobacco dust will not have the same effect to save them; perhaps the price may be an objection; it now commands one dollar per bushel, but formerly could be obtained of the tobacconists for twelve and a half cents.

Large Geese.—We yesterday saw in a wagon a pair of young geese, raised by James Sisson, Esq. of Warren, of very large size, being now only three months old. The breed was imported from East Friesland last fall, in the ship North America, Capt. Child, who asserts that these geese frequently grow to upwards of twenty pounds, dressed. They are very full of soft fine feathers, which is an article of exportation from that country, and very much sought for in Germany, Holland and England. These geese are the first of this breed which has ever been imported into the United States.—*Prov. Pat.*

Vegetable Inoculation. Mention is made in a London paper of a blotch-leaved variety of the English laburnum, a bud of which being inserted in the bark of the common laburnum, has invariably the effect of making the leaves of the latter blotched, like the parent stock of the bud. "If," says Mr. Falla, "the blotched leaves of the plants arise from a disease, this may justly be considered as virulent a disorder in the vegetable world as the small-pox is in the human race, and this operation may very fairly be said to be inoculation."

Vegetable extremes.—The largest growing vegetable hitherto observed is the *Baobob* of Senegal, a tree whose trunk often exceeds thirty feet in diameter. Its height is not proportionate to this enormous magnitude of trunk, since it is not more than forty or fifty feet. The largest trees in America are the *Plane* tree and *Black Walnut*, in the western country. In Ohio they attain the height of seventy or eighty feet, having a trunk of eight or nine feet in diameter. Michaux measured one which was forty-seven feet in circumference at four feet from the ground. The Plane tree of Lycia, mentioned by Pliny, sheltered in its hollow trunk the Roman Consul, L. Mutianus, and eighteen persons of his retinue. The interior of this trunk was seventy-five feet in circumference.

The largest herbaceous plant known is perhaps the *Agave Virginica*, whose spike of flowers are often of the size of a tree. The Tulip tree of America (*Liriodendron*) in certain situations attains to a most extraordinary magnitude. In Tennessee and

other western parts of the United States it is not uncommon to find them of nine feet in diameter, and a height of a hundred and fifty feet. Our magnolia are equally remarkable for their immense size as well as their splendid flowers of the M. macrophylla, sometimes measuring ten inches across, and surpassing in dimension any other flowering trees known. The smallest woody plant is an Alpine Willow, (*Salix herbacea*) which bears its flower when not more than an inch in height. Plants of the cryptogamia race are equally remarkable for variatiou in magnitude. Many of them are so small as scarcely to be discernable without the aid of a telescope. In the Island of Java, near Batavia, a fungus in shape like a funnel grows to the magnitude of three feet in diameter, and many of our southern states are found of a size not inferior. The *Merulius brassicæfolius*, a fungus described by Dr. Schweinitz obtains the diameter of three feet, and similar to a cabbage; the *Boletus giganteus*, four feet diameter. The flower of the *Raflesia*, a plant which it is not yet decided to which class it belongs, some authors supposing it a fungus or something intermediate between that class and the phenogamous race, grows in Java, and is frequently found in diameter three feet. It is destitute of both leavesand stem, and is always attached as a parasite on the root of other plants.

Mould.—Dr. McCulloch, in the Philosophical Transactions states, that all essential oils possess the property of preventing the growth of mould. Cloves and other spices whose flavor is grateful, may be applied to articles of food—oil of lavender in a very minute quantity. Russia leather, which is perfumed with tar of birch tree, is not subject to mouldiness, and books bound with it prevent it in those near which they lie. A few drops of any perfumed oil will insure libraries from this pest. Dr. McC. made some experiments with some agents on wood to prevent dry rot in timber, but was prevented from completing them.

With regard to *Paste*, he prefers rosin to allum as a preventive; but lavender, or any other strong perfume, as peppermint, anise, burgamot, are effectual for years, however the paste is composed. The paste employed by Dr. McC. is made of flour in the usual way, but rather thick, and with a proportion of brown sugar and a small quantity of corrosive sublimate. The use of sugar is to keep it flexible, so as to prevent its scaling off from smooth surfaces, and that of corrosive snblimate is an effectual check against fermentation. This salt, however, does not prevent the formation of mouldiness. Paste made in this manner will dry, so that it may be used by wetting. This principle is applicable to seed. As an illustration, aromatic seeds of all kinds are not subject to mould, and their vicinity prevents it in others with which they are packed. Thus also in animal substances, as is known by putting pepper in stuffed birds and other animals, which then will not be attacked by mould. Gingerbread, containing carroway seed is far less liable to mould than plain bread. Sweetmeats or other conserves may easily be prevented from mouldiness by suspending in the jars containing them bits of sponge, which have been dipped in some aromatic oil, such as peppermint, burgamot, cajeput or other kinds.

French Industry.—The society for the encouragement of National Industry in France exhibits great and laudable activity. A number of medals and other rewards have lately been distributed to various agriculturists, manufacturers, &c. and prises of different amount are offered for the productions and inventions of the present year; among others 2000 franks for the fabrication of bricks, tiles, &c. by machinery; 1000 franks for a machine to shave the hair off skins employed in hat making; 2,000 for an isinglass or other substance, capable of clarifying beer; 6,000 francs for a factitious ultramarine; 3,000 francs for the fabrication of paper from the bark of the *morus papyrifera*: 2,400 francs fot a uew method of sylvering looking glasses; 1,500 for the improvement of the materials in copper plate ingraving; 5,000 for the dessication of meats; 600 francs for a mill for cleansing buckwheat; various prizes for the construction of simple instruments for extracting sugar from beet root; for the importation into Erance, and the cultivation of plants, useful in agriculture, manufactures and the arts, &c. The amount of the prizes offered is 122,500 francs.—*Anon.*

Green Crops as a Manure.—The expediency and profit of any particular method to improve and enrich a soil depend on circumstances. We should suppose this season to be a very favorable one for ploughing in green crops. Old and worn out lands, that usually produce but little grass, are now richly covered. Let this be ploughed in, and it will abundantly reward the farmer another season, when it will be more wanted.

Rasberry Wine.—Take equal quantities of fruit and water, bruise and let them stand two days' then strain it, and to every gallon put four pounds of coarse sugar, when dissolved, put the liquor in a barrel, and when fine, which will be generally in three months bottle it, and in each bottle put a large spoonful of brandy.